AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A ~~computer-readable medium containing~~ method for organizing and storing a peer identity in a peer-to-peer network by using an identity certificate data structure, the ~~identity certificate data structure~~ method comprising:

creating an identity public/private key pair comprising creating an identity public key and an identity private key;

storing data representing the identity public key in a first data field of the identity certificate data structure;

creating an identity peer name;

storing data representing the identity peer name in a second data field of the identity certificate data structure;

storing data representing a certificate type in a third data field of the identity certificate data structure,

~~a first data field containing data representing an identity peer name;~~

~~a second data field containing data representing an identity public key, the identity public key and an identity private key forming a public/private key pair;~~

~~a third data field containing data representing a certificate type,~~ the certificate type indicating an identity certificate; and

~~a fourth data field containing data representing~~ creating a signature of the identity certificate, the signature derived, at least in part, from the identity private key; and

storing data representing the signature of the identity certificate in a fourth data field of the identity certificate data structure.

2. (Currently Amended) The ~~identity certificate data structure~~ method of claim 1 wherein using the identity certificate data structure ~~is~~ comprises using an X.509 certificate.

3. (Currently Amended) The ~~identity certificate data structure~~ method of claim 2 wherein ~~the first data field is~~ storing data representing the identity peer name in the second data field comprises storing data representing the identity peer name in a subject alternative name field of the X.509 certificate.

4. (Currently Amended) The~~ identity certificate data structure~~ method of claim 2 wherein ~~the third data field is~~ storing data representing a certificate type in the third data field comprises storing data representing a certificate type in an extension property field of the X.509 certificate.

5. (Currently Amended)The ~~identity certificate data structure~~ method of claim 1 wherein creating the identity peer name ~~in the first data field~~ comprises creating a ~~is~~ globally unique identity peer name.

6. (Currently Amended) The ~~identity certificate data structure~~ method of claim 1 wherein creating the identity peer name ~~in the first data field is derived, at least in part, from~~ comprises deriving the identity peer name from, at least in part, the identity public key ~~in the second data field~~.

7. (Currently Amended) The ~~identity certificate data structure~~ method of claim 6 wherein ~~the identity peer name in the first data field is derived, at least in part, from~~ deriving the identity peer name from, at least in part, the identity public key comprises deriving the identity peer name from, at least in part, a hash of the identity public key ~~in the second data field~~.

8. (Currently Amended) The ~~identity certificate data structure~~ method of claim 1 ~~wherein~~ further comprising storing data representing the identity private key ~~is stored~~ in a ~~Cryptographic Service Provider~~ secure container and storing a reference to the data representing the identity private key in association with the identity certificate data structure.

9. (Currently Amended) The ~~identity certificate data structure~~ method of claim 1 further comprising:

~~a fifth data field containing~~ storing user identification data in at least one of a fifth and a sixth data field of the identity certificate data structure, the user identification data representing a user at whose request the peer identity was created ~~an issuer of the identity certificate; and~~

~~a sixth data field containing data representing a subject of the identity certificate, wherein the issuer and the subject of the identity certificate are the same~~.

10. (Currently Amended) The ~~identity certificate data structure~~ method of claim 1 further comprising at least one of:

~~a fifth data field containing~~ storing data representing a period of validity of the identity certificate in a seventh data field of the identity certificate data structure; and

storing data representing a version of the identity certificate in an eighth data field of the identity certificate data structure.

11. (Canceled) The identity certificate data structure of claim 1 further comprising:

a fifth data field containing data representing a version of the identity certificate.

12. (Currently Amended) A ~~computer readable medium containing~~ method for organizing and storing a group identity in a peer-to-peer network by using a group root certificate data structure, the ~~group root certificate data structure~~ method comprising:

creating a group root public/private key pair comprising creating a group root public key and a group root private key;

storing data representing the group root public key in a first data field of the group root certificate data structure;

creating a group peer name;

storing data representing the group peer name in a second data field of the group root certificate data structure;

storing data representing a certificate type in a third data field of the group root certificate data structure,

~~a first data field containing data representing a group peer name;~~

~~a second data field containing data representing a group root public key;~~

~~a third data field containing data representing a certificate type,~~ the certificate type indicating a group root certificate; and

~~a fourth data field containing data representing~~ creating a signature of the group root certificate, the signature derived, at least in part, from ~~a~~ the group root private key; and~~, the group root private key and the group root public key in the second data field forming a public/private key pair~~

storing data representing the signature of the group root certificate in a fourth data field of the group root certificate data structure.

13. (Currently Amended) The ~~group root certificate data structure~~ method of claim 12 wherein using the group root certificate data structure ~~is~~ comprises using an X.509 certificate.

14. (Currently Amended) The~~ group root certificate data structure ~~method of claim 13 wherein ~~the first data field is~~ storing data representing the group peer name in the second data field comprises storing data representing the group peer name in a subject alternative name field of the X.509 certificate.

15. (Currently Amended) The ~~group root certificate data structure~~ method of claim 13 wherein~~ the third data field is~~ storing data representing the certificate type in the third data field comprises storing data representing the certificate type in an extension property field of the X.509 certificate.

16. (Currently Amended) The ~~group root certificate data structure~~ method of claim 12 wherein creating the group peer name ~~in the first data field~~ comprises creating a ~~is~~ globally unique group peer name.

17. (Currently Amended) The ~~group root certificate data structure~~ method of claim 12 wherein creating the group peer name ~~in the first data field is derived, at least in part,~~ comprises deriving the group peer name, at least in part, from the group root public key ~~in the second data field~~.

18. (Currently Amended) The ~~group root data structure~~ method of claim 17 wherein ~~the group peer name in the first data field is derived, at least in part,~~ deriving the group peer name, at least in part, from the group root public key comprises deriving the group peer name, at least in part, from a hash of the group root public key~~ in the second data field~~.

19. (Currently Amended) The ~~group root certificate data structure~~ method of claim 12 further comprising:

~~a fifth data field containing~~ storing user identification data in at least one of a fifth and a sixth data field of the group root certificate data structure, the user identification data representing a user at whose request the group identity was created ~~an issuer of the group root certificate; and~~

~~a sixth data field containing data representing a subject of the group root certificate, wherein the issuer and the subject of the group root certificate are the same~~.

20. (Currently Amended) The ~~group root certificate data structure~~ method of claim 12 further comprising:

~~a fifth data field containing~~ storing data representing a period of validity of the group root certificate in a seventh data field of the group root certificate data structure.

21. (Currently Amended) The ~~group root certificate data structure~~ method of claim 12 further comprising:

~~a fifth data field containing~~ storing data representing a version of the group root certificate in an eighth data field of the group root certificate data structure.

22. (Currently Amended) A ~~computer-readable medium containing~~ method for organizing and storing a group membership identity corresponding to a group identity and a group member in a peer-to-peer network using a group membership certificate data structure, the ~~group membership certificate data structure~~ method comprising:

storing data representing a group peer name in a first data field of the group membership certificate data structure, wherein the group peer name corresponds to a group peer name of the group identity;

storing data representing an issuer peer name in a second data field of the group membership certificate data structure;

storing data representing a subject peer name in a third data field of the group membership certificate data structure, the subject peer name comprising a reference to a peer identity certificate of the group member;

storing data representing a certificate type in a fourth data field of the group membership certificate data structure,

~~a first data field containing data representing a group peer name;~~

~~a second data field containing data representing an issuer peer name;~~

~~a third data field containing data representing a subject peer name;~~

~~a fourth data field containing data representing a certificate type,~~ the certificate type indicating a group membership certificate; and

~~a fifth data field containing data representing~~ storing data representing a signature of the group membership certificate in a fifth data field of the group membership certificate data structure.

23. (Currently Amended) The ~~group membership certificate data structure~~ method of claim 22 wherein using the group membership certificate data structure ~~is~~ comprises using an X.509 certificate.

24. (Currently Amended) The ~~group membership certificate data structure~~ method of claim 23 wherein storing data representing a group peer name in the first data field comprises storing data representing a group peer name in ~~the first data field is~~ an extension property field of the X.509 certificate.

25. (Currently Amended) The ~~group membership data structure~~ method of claim 23 wherein ~~the second data field is~~ storing data representing an issuer peer name in the second data field comprises storing data representing an issuer peer name in an issuer alternative name field of the X.509 certificate.

26. (Currently Amended) The ~~group membership data structure~~ method of claim 23 wherein ~~the third data field is~~ storing data representing a subject peer name in the third data field comprises storing data representing a subject peer name in a subject alternative name field of the X.509 certificate.

27. (Currently Amended) The ~~group membership data structure~~ method of claim 22 wherein storing data representing the group peer name in the first data field comprises storing data representing a ~~is~~ globally unique group peer name.

28. (Currently Amended) The ~~group membership data structure~~ method of claim 22 wherein storing data representing the issuer peer name in the second data field ~~is~~ comprises storing data representing a reference to a certificate selected from the group consisting of: a group root certificate corresponding to the group identity and a neighbor group membership certificate corresponding to a neighbor group member.

29. (Currently Amended) The ~~group membership certificate data structure~~ method of claim 22 further comprising:

~~a sixth data field containing~~ storing data representing a period of validity of the group membership certificate in a sixth data field of the group membership certificate data structure.

30. (Currently Amended) The ~~group membership certificate data structure~~ method of claim 22 further comprising:

~~a sixth data field containing~~ storing data representing a version of the group membership certificate in a seventh data field of the group membership certificate data structure.

31. (Currently Amended) The ~~group membership certificate data structure~~ method of claim 22 further comprising:

~~a sixth data field containing~~ creating a signature of the group membership certificate, comprising:

if the group root private key is known, deriving the signature, at least in part, from a group root private key corresponding to the group root certificate; and

if the group root private key is unknown, deriving the signature, at least in part, from a group membership private key of a created group membership ~~data representing a public key, the public key and a private key forming a~~ public/private key pair.

32. (Currently amended) A ~~computer-readable medium containing a~~ method for organizing a group identity store for use in a peer-to-peer network by using a group certificate chain data structure, the ~~group certificate chain data structure~~ method comprising:

storing in a first portion of the group certificate chain data structure ~~a first data field containing~~ data representing a group root certificate created per a request of a user ~~the group root certificate~~ comprising:

~~a second data field containing~~ storing data representing a group peer name corresponding to the group root certificate;

~~a third data field containing~~ storing data representing a group root public key corresponding to the group root certificate;

~~a fourth data field containing~~ storing data representing a certificate type, the certificate type indicating ~~a~~ the group root certificate; and

~~a fifth data field containing~~ storing data representing a signature of the group root certificate, the signature derived, at least in part, from a group root private key, the group root private key and the group root public key ~~in the third data field~~ forming a public/private key pair; and

storing in a second portion of the group certificate chain data structure ~~a sixth data field containing~~ data representing a group membership certificate corresponding to the group root certificate, ~~the group membership certificate~~ comprising:

~~a seventh data field containing~~ storing data representing ~~a~~ the group peer name~~, the group peer name in the seventh data field being the same as the group peer name in the second data field in the group root certificate~~;

~~an eighth data field containing~~ storing data representing an issuer peer name, the issuer peer name ~~in the eighth data field being~~ comprising a reference to the group root certificate ~~in the first data field~~;

~~a ninth data field containing~~ storing data representing a subject peer name;

~~a tenth data field containing~~ storing data representing a certificate type, the certificate type indicating ~~a~~ the group membership certificate; and

~~an eleventh data field containing~~ storing data representing a signature of the group membership certificate.

33. (Currently amended) The ~~group certificate chain data structure~~ method of claim 32 wherein storing data representing the group root certificate and storing data representing the group membership certificate ~~are~~ comprise storing X.509 certificates.

34. (Currently amended) The ~~group certificate chain data structure~~ method of claim 32 wherein storing data representing the group membership certificate ~~in the sixth data field~~ further comprises:

~~a twelfth data field containing~~ storing data representing a member public key, the member public key and a member private key forming a member public/private key pair.

35. (Currently amended) The ~~group certificate chain data structure~~ method of claim 34 further comprising at least one of:

storing data representing a set of one or more group root certificates created per request of the user, and

for each member of the set of one or more group root certificates, storing data representing a plurality of corresponding group membership certificates.

~~a thirteenth data field containing data representing a second group membership certificate, the second group membership certificate comprising:~~

~~a fourteenth data field containing data representing a group peer name, the group peer name in the fourteenth data field being the same as the group peer name in the second data field in the group root certificate;~~

~~a fifteenth data field containing data representing an issuer peer name, the issuer peer name in the fifteenth data field being a reference to the group membership certificate in the sixth data field;~~

~~a sixteenth data field containing data representing a subject peer name;~~

~~a seventeenth data field containing data representing a certificate type, the certificate type indicating a group membership certificate; and~~

~~an eighteenth data field containing data representing a signature of the second group membership certificate.~~

36. (New) A method for organizing a peer identity store for use in a peer-to-peer network comprising:

identifying a set of one or more identity certificates created per request of a user,

collecting the set of one or more identity certificates into the peer identity store, and

setting a profile of the user to refer to the peer identity store.